Sarhad J. Agric. Vol.19, No.4, 2003

NUTRIENTS DENSITY OF CONFECTIONERY PRODUCTS CONSUMED IN PESHAWAR AND MARDAN DIVISIONS (NWFP)

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ABSTRACT

Ingredients composition and nutritional evaluation of four types of each of *barffies* and *rasgullas*, 5 types of sweets and 11 other miscellaneous products namely *amratee, halwa, laddo, somosa, pateesa, perra, namakpara, pakora, masu, abidana* and *pistaroll*, prepared in Peshawar, Charsadda, Nowshera districts (Peshawar Division), Mardan and Swabi districts (Mardan Division) were determined. The average ingredient composition of *barffies* was 47% sugar, 23% milk and 2% fat. In *Choharbar* and *Kaddo barffies*, 16% dates and 28% pumpkin respectively were the additional ingredients. The average ingredient composition of *rasgullas* was 63% sugar, 24% milk and 9% fat. In sweets, the average ingredient composition was 33% flour, 30% sugar, 2% milk and 17% fat. *Almonium Masala* was used in small amount in *Rajar* and *Sada* sweets. Flour, sugar, milk, fat, basin, onion, potato, meat, egg and spices were the ingredients for the various miscellaneous products. The average proximate composition of *barffies* was 8.87% moisture, 6.26% protein, 18.39% fat, 1.69 ash, 1.97% fiber and 63.10% carbohydrate. The average caloric value of *barffies* was 445 Kcal/100g of *barffies*. The average chemical composition of *rasgullas* was 21.20% moisture, 7.74% protein, 28.29% fat, 1.45% ash, 1.64% fiber and 39.66% carbohydrate. The average caloric value of *rasgullas* was 445 Kcal/100 g of the product. The average proximate composition of sweets was 8.88% moisture, 8.98% protein, 30.21% fat, 1.13% ash, 3.35% fiber and 48.06% carbohydrates. The average caloric value of sweets was 501 Kcal/100 g of the product. The protein contents of *amratee, halwa, laddo, somosa, perra, pateesa, namakpara, pakora, masu, abidana* and *pistaroll* were 3.33%, 2.70% 5.43%, 5.25%, 8.90%, 2.63%, 5.76%, 7.91%, 2.63%, 2.95% and 8.58%, respectively. The fat contents of these products were 18.53%, 20.51%, 31.95%, 31.57%, 2.01%, 23.30%, 28.00%, 23.00%, 31.00%, 21.10 and 18.68% respectively. The carbohydrate contents of these products were 68.33%, 50.34%, 45.12%, 31.84%, 63.13%, 69.02%, 58.66%, 11.08%, 62.53%, 56.47% and 55.26% respectively. The caloric values of these products were 453, 397, 490, 433, 306, 496, 510, 283, 540, 428 and 424 Kcal /100g of the products respectively. In general, confectionery products are low in protein and high in fat and sugar. Excessive consumption of confectionery products may cause ill effects in health.

INTRODUCTION

Confectionery products are ready to eat fried foods usually high in sugar or fat or both (Encyclopedia Americana 1976). The major use of confectionery products is at social and ceremonial gatherings and at religious festivals. Guests and friends are also entertained with confectionery products. In many urban and some rural families, consumption of confectionery products has become the routine of daily eating schedule. Confectionery products may create health problems when eaten in routine.

Confectionery products are good supplementary foods provided their ingredients, nutrient composition and caloric values are known. Sugar, fat and milk are the major ingredients used in confectionery preparation (Hanneman, 1980; Matz, 1972). Flour is also used as major ingredient in some of the confectionery products. Some types of confectionery products have additional ingredients like dates and pumpkins (Kardar, 1993). The minor ingredients of confectionery products are baking powder, acids, food colors, jellying and emulsifying agents etc (Kardar, 1993, Ali, 1994 and Ashraf, 1992).

There are very few studies, which have reported the chemical composition and caloric values of some Confectionery products prepared in Pakistan. Hussain (1985) determined the chemical composition of *barffies*, *jalaibee* and *halwa*. He reported 3.4% moisture, 1.5% protein, 0.8% fat and 90.9% nitrogen free extract (NFE) in barffies; 10.2% moisture, 0.8% protein, 9.8% fat and 77.6% NFE in *jalaibee* and 3.4% moisture, 0.3% protein, 19.9% fat and 74.3% NFE in halwa. The energy contents of these products were 384, 395 and 418 Kcal/100 g of the products respectively. Aurangzeb *et al.* (1989) determined the chemical composition of *jalaibee*. They reported that

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jalaibee contained 12.9% moisture, 6.9% protein, 32.8% fat and 45.3% carbohydrate respectively. Bows and Churches (1985) reported the chemical composition of some confectionery products of western origin.

Ingredients formulation, chemical composition and caloric values of confectionery products, prepared in Peshawar and Mardan divisions and even in the North West Frontier Province (NWFP), are not known. So there is a need to analyze almost all the Confectionery products available in North West Frontier Province (NWFP) that the consumers have the information about the ingredients, nutrients composition and caloric values of these products. This study reports the ingredient formulation, nutrient composition and caloric values of confectionery products available in Peshawar, Charsadda and Nowshera districts (Peshawar Division), Mardan and Swabi districts (Mardan Division).

MATERIALS AND METHODS

Location and Sample Selection for the Study

The study was conducted in Peshawar, Charsadda and Nowshera districts of Peshawar Division, Mardan and Swabi districts of Mardan Division of NWFP, Pakistan. Three cities/towns were selected from each district. Because confectioners are mainly located in cities/towns so the capital city and two other cities/towns from each district were selected in a way that the selected cities/towns covered the variation due to geographical locations and ethnic difference. Two extra towns, i.e. Rajar in district Charsadda and Hathian in district Mardan were also selected for the special confectionery products prepared in these towns. A list of bakers and confectioners in each selected city/town was prepared. Thirty three percent (33%) shops from each city/town were selected for the survey. In total, there were 307 bakers/confectioners shops in the area of the study and 106 were selected for the study. Information about ingredients, and ingredient composition were collected from the cook men of the bakery and confectionery shops. The weight of ten pieces of each Confectionery product in each selected shop was determined using a digital balance.

Compilation of the Data

For purpose of simplicity, uniformity and easy comparison, one of the major ingredients like flour or sugar was fixed and the remaining ingredients were calculated in the ratio from the information provided by cook men of the bakery and confectionery shops. The data was coded as 1-24 for the two divisions, 5 districts and 17 cities/towns and fed to the computer for calculation of mean weight of ingredients and weight per piece of confectionery products.

Chemical Analysis of the Confectionery Products

For chemical analysis, 10% of the selected bakers/confectioners were randomly selected. Samples of 4 types of *barffies*, 4 types of *rasgullas*, 5 types of sweets (*mattaees*) and 11 miscellaneous products namely *amratee, halwa, laddo, samosa, pateesa, perra, namakpara, pakora, masu, abidana* and *pistaroll* were collected from each selected shop and were taken to the Food Laboratory of Nuclear Institute for Food and Agriculture (NIFA), Tarnab, Peshawar for chemical analysis. Each type of the confectionery products collected from the selected shops was mixed to make a composite sample of that product. The composite samples were analyzed in triplicate. The methods of Association of Official Analytical Chemists (AOAC, 1984) were used for chemical composition. The caloric values of these products were calculated by multiplying the carbohydrate, protein and fat contents of these products by factors 4, 4 and 9, respectively.

RESULTS AND DISCUSSION

Weight and Ingredient Composition of Barffies

Four types of barffies were available on the bakery and confectionery shops of Peshawar and Mardan divisions. The weight, ingredients and ingredients composition of *barffies* is given in Table I. The weight per piece of barffies ranged from 52.5 g for *Sada barffi* to 57.3 g for *Kaddo barffi* with an average weight of 55.3 g for all types of *barffies*.

The major ingredients of barffies were sugar, milk and fat. The minor ingredients were dry dates (*chohari) and* pumpkin (*Kaddo)*. Dry dates (*Chohari*) and pumpkin (*Kaddo*) were used for taste and name of the product. It might have added some nutrients to the product. The nutritional and caloric values of barffies were mainly due to sugar, milk and fat (the major ingredients).

The ingredient composition ranged from 40 % sugar in *Kaddo barffi* to 53 % sugar in *Qalaqand barffi* with an average value of 47.0% sugar for all types of *barffies*; 17 % milk in *Sada barffi* to 26 % milk in *Choharbar barffi* with an average value of 23.0% milk in all types of *barffies* and 1.0 % fat in *Kaddo barffi* to 2 % fat in *Qalaqand, Choharbar and Sada barffies* with an average value of 1.85% fat for all types of *barffies*. Sixteen percent dates *(chohari)* and 28.0% pumpkin (*kaddo*) were used as minor ingredients in *Choharbar* and *Kaddo barffies*, respectively.

Table I ***Weight and ingredients composition of barffies***[1]

Name	Weight[2] (g)	Major Ingredients			Minor Ingredients	
		Sugar (%)	Milk (%)	Fat (%)	Date (%)	Pumpkin (%)
Qalaqand	54.6	53	24	2	-	-
Sada	52.5	51	17	2	-	-
Choharbar	56.7	45	27	2	16	-
Kaddo	57.3	40	24	1	-	28
Average	55.3	47	23	2.0	-	-

1. The figures presented in the rows for ingredients in that particular product are the average values, based on the information collected from selected shops of Peshawar and Mardan divisions.
2. The weight in column 2 is the average weight of barffies.

Chemical Composition and Caloric Values of Barffies

Four types of barffies were analyzed. Their chemical composition is given in Table II. The moisture content ranged from 8.76% (*Sada barffi*) to 8.95% (*Kaddo barffi*), with an average value of 8.87% for all types of barffies. The protein contents ranged form 2.56% (*Kaddo barffi*) to 9.88% (*Chocolate barffi*), with an average value of 6.26% for all types. The fat contents ranged from 10.67% (*Choharbar barffi*) to 36.09% (*Qalaqand barffi*) with an average of 18.39% for all the four types of *barffies*. The ash contents ranged from 1.25% for *Kaddo barffi* to 1.90% for *Sada barffi*, with an average value of 1.68% for all types. The values for fiber contents ranged from 0.98% (*Choharbar barffi*) to 4.35% (*Kaddo barffi*) with an average value of 1.97% for all types of *barffies*. The nitrogen free extract (carbohydrate) contents ranged from 49.16% (*Qalaqand barffi*) to 72.12% (*Kaddo barffi*), with an average value of 63.10% for all the 4 types.

Hussain (1985) reported 3.4%moisture, 1.5% protein, 0.8% fat and 90.9% nitrogen free extract in barffies. The findings about moisture, protein and fat contents of our study were higher while the nitrogen free contents were lower than the reported values (Hussain, 1985). The values reported in our data are based on a very large sample size and are more representatives, while Hussain (1985) analyzed sample from one shop.

The energy content ranged from 404 Kcal/100 g of *Kaddo barffi* to 533 Kcal/100 g of *Qalaqand barffi*, with an average value of 445 Kcal/100 g of all types of *barffies*. *Barffies* are really high in sugar and fat and hence are high in energy. Over weight people should not use this product. The caloric values of barffi found in this study were higher than reported by Hussain, (1985). Our data is based on large sample of products and is more representatives.

Table II ***Chemical composition and caloric values of barffies***[1]

Name	Moisture (%)	Protein (%)	Fat (%)	Ash (%)	Fiber (%)	Carbohydrate (%)	Energy Kcal/100g
Qalaqand	8.92± 0.58	2.80±0.05	36.09±0.26	1.85± 0.006	1.20± 0.005	49.16± 0.69	533
Sadda	8.76± 0.65	9.81±0.11	16.03±0.06	1.90± 0.009	1.35± 0.004	62.16± 0.58	432
Choharbar	8.83± 0.99	9.88±0.15	10.67±0.05	1.71± 0.004	0.98± 0.006	68.94± 0.78	407
Kaddo	8.95± 1.25	2.56±0.16	10.77±0.11	1.25± 0.004	4.35± 0.004	72.12± 0.98	404
Average	8.87	6.26	18.39	1.68	1.97	63.10	445

The determinations were done in triplets

Weight and Ingredient Composition of Rasgullas

Four types of rasgullas were available on the bakery and confectionery shops of Peshawar and Mardan divisions. The weight, ingredients and ingredients composition of rasgullas is given in Table III. The weight per piece of rasgullas ranged from 50.9 g for *saibwala rasgulla* to 52.8 g for *chamcham rasgulla*.

The major ingredients of rasgullas were sugar, milk and fat. Minor ingredients were not used in the preparation of *rasgullas*. *Nashpatiwala rasgullas* and *saibwala rasgullas* were given these names because they were prepared in the shape of pear (*nashpati*) and apple (*saib*). These products were not having pear (*nashpati*) and apple (*saib*) in their formulations. The nutritional and caloric values of *rasgullas* were mainly due to sugar, milk and fat.

The ingredient composition of *rasgullas* ranged from 55 % sugar in *saibwala rasgulla* to 67 % sugar in *nashpatiwala rasgulla* with an average value of 63 %. The milk content ranged from 22 % in *saibwala rasgulla* to 26 % milk in *nashpatiwala rasgulla*, 7 % fat in *nashpatiwala rasgulla* to 10 % fat in *chamcham rasgulla*. Food colors were added in trace amounts. The average ingredient composition of *rasgullas* was 63 % sugar, 24 % milk and 9 % fat.

Table III ***Weight and ingredients composition of rasgullas[1]***

Name	Weight[2] (g)	Major Ingredients			Minor Ingredients		
		Sugar (%)	Milk (%)	Fat (%)	Red color[3] (%)	Yellow color (%)	Green color[3] (%)
Chamcham	52.8	66	23	10	Tr.	-	-
Nashpatwala	51.8	67	26	7	-	Tr.	-
Saibwala	50.9	55	22	8	-	Tr.	Tr.
Sada	51.4	63	23	9	-	-	-
Average	51.7	63	24	9	-	-	-

1. The figures presented in the rows for ingredients in that particular product are the average values, based on the information collected from selected shops of Peshawar and Mardan divisions
2. The weight in column 2 is the average weight of Rasgullas
3. Tr. Stands for trace amounts

Chemical Composition and Caloric Values of Rasgullas

The chemical composition of *rasgullas* is given in Table IV. The moisture contents ranged from 17.74% (*sada rasgulla*) to 24.85% (*saibwala rasgulla*) with an average value of 21.20% for all types. The values for protein contents ranged from 6.83% (*nashpatiwala rasgulla*) to 8.93% (*sada rasgulla*), with an average value of 7.74% for all types. The fat contents ranged from 15.96% for *chamcham rasgulla* to 47.70% for *sada rasgulla* with an average value of 28.29% for all four types. Ash contents ranged from 1.40% (*chamcham rasgulla*) to 1.51% (*nashpatiwala rasgulla*), with an average value of 1.45%. The fiber content ranged from 1.44% (*sada rasgulla*) to 1.95% (*chamcham rasgulla*) with an average value of 1.64% fiber contents for all types. The carbohydrate contents ranged from 27.74% to 53.43% for *sada rasgulla* and *chamcham rasgulla*, respectively, with an average value of 39.66% for all four types of rasgullas.

The values for energy contents ranged from 388 Kcal/100 g of the product for *chamcham rasgulla* to 531 Kcal/100 g of the product for *sada rasgulla*, with an average value of 445 Kcal /100 g of the product for all types of rasgullas. The chemical composition of rasgullas is not available in literature, however, generally, their composition is like that of barffies. *Rasgullas* are high in energy content.

Table IV ***Chemical composition and caloric values of rasgullas[1]***

Nsame	Moisture (%)	Protein (%)	Fat (%)	Ash (%)	Fiber (%)	Carbohydrate (%)	Energy Kcal/100g
Chamcham	20.01± 0.87	7.88± 0.11	15.96±0.26	1.40± 0.007	1.95± 0.004	53.40± 0.85	388
Nashpatiwala	24.64± 0.69	6.83± 0.33	27.50±0.06	1.51± 0.003	1.75± 0.001	37.52± 0.69	425
Saibwala	24.85± 0.22	7.35± 0.13	27.00±0.06	1.45± 0.001	1.82± 0.003	39.98± 0.68	424
Sada	17.74± 0.08	8.93± 0.15	42.70±0.21	1.45± 0.001	1.44± 0.001	27.74± 0.65	531
Average	21.20	7.74	28.29	1.45	1.64	39.66	445

The determinations were done in triplets

Weight and Ingredient Composition of Sweets (Mattaees)

Five types of sweets were available on the bakery and confectionery shops of Peshawar and Mardan divisions. The weight, ingredients and ingredients composition of sweets is given in Table V. The weight of sweets per piece ranged from 17.3 g for *maichey* to 65.7 g for *gulabjaman*. The average weight per piece of sweets was 33.4g.

The major ingredients in sweets were flour, sugar and fat. In *sada* and *Rajar sweets*, milk was included as an additional ingredient. These ingredients were responsible for the nutritional and caloric values of the product. *Rajar* sweet is known for its special taste and color. The minor ingredient of sweets was *almonum masala* (a mixture of spices), used mainly for the cooking quality.

The ingredients composition of sweets ranged from 22 % flour in *gulabjaman* to 51 % flour in *maichey*, 2 % milk in *gulabjaman* to 33 % milk in *Rajar sweet*, 10 % fat in *Rajar sweet* to 29 % fat in *gulabjaman*. Milk was not used in the preparation of *Kajoor* sweet. In *Rajar* and *sada* sweets, 0.95 % and 0.6 % *almonium masala* was used, respectively. The average ingredient composition of sweets was 33 % flour, 30 % sugar, 2 % milk and 17 % fat.

Table V ***Weight and ingredients composition of sweets[1]***

Name	Weight[2] (g)	Major Ingredients				Minor Ingredients
		Flour (%)	Sugar (%)	Milk (%)	Fat (%)	Almonium *Masala* (%)
Rajar	21.7	26	31	33	10	0.9
Sada	21.9	25	30	31	11	0.6
Kajoor	50.7	40	27	-	18	-
Maichai	17.3	51	9	9	15	-
Gulabjaman	55.7	22	54	2	29	-
Average	33	33	30	2	17	-

1. The figures presented in the rows for ingredients in that particular product are the average values, based on the information collected from selected shops of Peshawar and Mardan divisions.
2. The weight in column 2 is the average weight of sweets.

Chemical Composition and Caloric Values of Sweets

The chemical composition of 5 types of sweets (*mattaees*) is given in Table VI. The moisture content ranged from 4.21% for *maichey* sweet to 19.70% for *gulabjaman* with an average value of 8.88% for all types. The protein contents of sweets ranged from 7.32% for *Rajar* sweet to 11.38 % for *gulabjaman*, with an average value of 8.98% for all types of sweets. The fat contents ranged from 12.0% for *maichey* sweet to 36.00 % for *kajoor* sweet, with an average value of 32.21% for all types of sweets. The ash contents ranged from 0.32 % for *kajoor* sweet to 1.51 % for *gulabjaman*, with an average value of 1.13 % for all types of sweets. The fiber content ranged from 1.50 % for *gulabjaman* to 3.51 for Sada sweet with an average value of 3.35% for all types. The carbohydrate content ranged from 31.26 % for *gulabjaman* to 70.77 % for *maichey* sweet with an average value of 48.06 % for all types.

The caloric values of sweets ranged from 427 Kcal./100 g of the product for *maichey* sweet to 528 Kcal/100 g of the product for *kajoor* sweet with an average value of 501 Kcal/100 g of the product for all types. Sweets are also high in sugar and fat and hence are high in energy. It can be used, as supplementary food for energy for children, however excess should be avoided. The chemical composition and caloric values of sweets are not available in local literature.

Table VI ***Chemical composition and caloric values of sweets[1]***

Name	Moisture (%)	Protein (%)	Fat (%)	Ash (%)	Fiber (%)	Carbohydrate (%)	Energy Kcal/100g
Rajar	8.51± 0.69	7.32± 0.05	34.51±0.05	0.91± 0.009	3.11± 0.005	45.65± 0.69	523
Sadda	7.13± 0.24	8.93± 0.09	33.80±0.11	0.35± 0.007	3.56± 0.4	46.23± 0.47	525
Kajoor	4.85± 0.15	7.62± 0.09	36.00±0.11	0.32± 0.004	2.72± 0.01	48.49± 1.08	548
Maichey	4.21± 0.56	9.63± 0.19	12.00±0.12	1.41± 0.006	2.50± 0.006	70.17± 1.00	427
Gulabjaman	19.70±0.17	11.38±0.05	34.72±0.08	1.51± 0.004	1.50± 0.004	31.26± 1.11	483
Average	8.88	8.98	30.21	1.13	3.35	48.06	501

1. The determinations were done in triplets

Weight, Ingredients and Ingredients Composition of Miscellaneous Confectionery Products

Eleven confectionery products namely *amratee, halwa, laddo, samosa, pateesa, perra, namakpara, pakora, masu, abidana* and *pistaroll* were available on the bakery and confectionery shops of Peshawar and Mardan divisions. These products were not fitting in the general grouping and hence were placed in a miscellaneous group. The weight and ingredients composition of miscellaneous products is given in Table VII.

The average weight per piece of *amratee, halwa, laddo, samosa, pateesa, perra, namakpara, pakora, masu, abidana* and *pistaroll* were 35.6, 52.2, 52.1, 63.9, 86.1, 65.1, 4.5, 14.9, 58.8, 29.3, and 59.9 g respectively. The average weight of abidana was of one lump size.

The major ingredients for *amratee* were flour, sugar and fat. No minor ingredient was used for amratee. In *halwa*, the major ingredients were flour, sugar and fat. No minor ingredients were used in halwa preparation. In *laddo*, the major ingredients were basin, sugar and fat. No minor ingredients were used. In *samosa*, the major ingredients were flour, fat and potatoes. Spices were used as minor ingredients. In *pateesa*, the major ingredients were flour, sugar and fat. The minor ingredient was glucose. In *perra*, the major ingredients were milk and sugar. No minor ingredients were used. In *namakpara*, flour and fat were the major ingredients. No minor ingredient was used. In *pakora*, the major ingredients were flour (basin), fat and onion. Spices were used as minor ingredients. The major ingredients used in masu were flour, sugar and fat and no minor ingredient was used in its preparation. In abidana, the major ingredients were flour, sugar and fat and no minor ingredients were used. In *pistaroll*, the major ingredients were sugar, milk and fat while *pista* (pistachio) was used as minor ingredient in its preparation. The major and minor ingredients used in various confectionery products have been reported in literature (Hanneman and Hanneman, 1980, Matz, 1972, Ashraf, 1992 and Kardar, 1993).

It should be noted that in almost all bakery and confectionery products, common salt was used as minor ingredient. However, it is not shown in the recipes in Tables I, III, V and VII. Also, baking powder is used as minor ingredient in all these products for baking quality. It is also not shown in the formulations of these products. Similarly, food colors and some other minor ingredients, which were added for baking quality and attractive look of the products, are not shown in the basic formulations of the products.

The ingredient composition of amratee was 40% flour, 23% fat and 23% sugar. The ingredient composition of *halwa* was 12% flour, 44% sugar and 18% fat. The ingredient composition of laddo was 48% basin, 28% sugar and 37% fat. The ingredient composition of *samosa* was 31% flour, 12% fat, 10% potatoes and 5 % spices. The ingredient composition of *pateesa* was 24% flour, 38% sugar 29% and 6% glucose. The ingredient composition of *perra* was 29% sugar and 55% milk. The ingredient composition of *namakpara* was 58% flour and 18% fat (fat). The ingredient composition of pakora was 29% basin, 12% fat, 33% onion and 5% spices. The ingredients composition of *masu* was 15 5 flour, 52% sugar and 2% fat. The ingredient composition of *abidana* was 14% flour, 43% sugar and 9% fat. The ingredient composition of *pistaroll* was 37% sugar, 39% milk, 14% fat and 3% *pista* (pistachio).

The average weight and ingredients composition of confectionery products could be different, based on the choice of bakers and confectioners and on the demand of consumers. The important point is to know the percent

ingredients composition so that one may be able to calculate the nutrients composition of the products.

The percent ingredient composition of confectionery products has not been reported in other studies. This work is the first attempt to report the ingredient composition of many confectionery products on percent basis.

Table VII ***Weight and ingredients composition of miscellaneous confectionery products[1]***

Name of product	Weight[2] (g)	Major Ingredients								Minor Ingredients	
		Flour (%)	Sugar (%)	Milk (%)	Fat (%)	Basin (%)	Onion (%)	Potatoes (%)	Meat (%)	Egg (%)	Others (%)
Amratee	35.6	40	23	-	23	-	-	-	-	-	-
Halwa	52.2	12	44	-	18	-	-	-	-	-	-
Laddo	52.1	-	28	-	37	8	-	-	-	-	-
Samosa	63.9	31	-	-	12	-	-	10	-	-	Spices 5
Pateesa	86.1	24	38	-	24	-	-	-	-	-	Glucose 6
Perra	65.1	-	29	55	-	-	-	-	-	-	-
Namakpara	4.5	58	-	-	18	-	-	-	-	-	-
Pakora	14.9	-	-	-	12	29	33	-	-	-	Spices 5
Masu	58.8	15	52	-	26	-	-	-	-	-	-
Abidana	29.3	14	43	-	9	-	-	-	-	-	-
Pistaroll	59.9	-	37	39	3	-	-	-	-	-	*Pista* 3

1. The figures presented in the rows for ingredients in that particular product are the average values, based on the information collected from selected shops of Peshawar and Mardan divisions
2. The weight in column 2 is the average weight of biscuits.

Chemical Composition and Caloric Values of Miscellaneous Confectionery Products

The chemical composition of miscellaneous confectionery products is given in Table VIII. The chemical composition of amratee was 8.23% moisture, 3.3% protein, 18.3% fat, 0.29% ash, 1.29% fiber and 68.3% carbohydrates. The caloric values per 100 g of *amratee* was 453 Kcal. The chemical composition of *halwa* was 24.05% moisture, 2.70% protein, 20.51% fat, 0.89% ash, 1.51% fiber and 50.34% carbohydrates. The caloric value of *halwa* per 100 g of the product was 397 Kcal. Similarly, the chemical composition of *laddo* was 13.91% moisture, 5.43% protein, 31.95% fat, 0.51 % ash, 3.10% fiber and 45.12% carbohydrates. The caloric value of *laddo* per 100 g of the product was 490 Kcal. The moisture content of *samosa, pateesa, perra, namakpara, pakora* were 27.07%, 3.48%, 22.91%, 3.07% and 52.29, respectively; the protein content of these products were 5.25, 2.63, 8.90, 5.76 and 7.91 percent respectively; the fat contents of these products were 31.57, 23.30, 2.01, 28.0 and 23.0 percent respectively. The ash content of these products were 21.54, 21.25, 1.21, 1.86 and 2.73 percent respectively; the fiber contents were 2.73, 1.25, 1.75, 2.65 and 3.0 percent respectively; the carbohydrate of these products were 31.84, 69.02, 63.13, 58.66 and 11.08 percent respectively. The caloric values of these products per 100 g of the products were 433, 496, 306, 510 and 283 Kcal, respectively. The moisture content of masu, abidana, and pistaroll were 2.14, 16.93 and 14.09%, respectively. The protein contents of these products were 2.63, 2.95 and 8.58 percent respectively. The fat content of these products were 31.0, 21.10 and 18.68 percent respectively. The ash content of these products was 0.49, 0.45 and 1.76 percent respectively. The fiber contents were 1.20, 2.07, and 1.65%, respectively. The carbohydrate content of these products was 62.53, 56.47 and 55.26%, respectively. The caloric values of these products per 100 g of the products were 540, 428 and 424 Kcal, respectively. Hussain (1985) has reported 3.4% moisture, 0.3% protein, 19.19% fat and 74.3 % nitrogen free extract in *halwa*. He has reported 418 Kcal per 100 g of *halwa*. Due to use of different amounts of the major ingredients, the chemical compositions of bakery and confectionery products vary. As our finding is the average values for many types and from many locations, and hence are more authentic and reliable.

The results clearly show that confectionery products are generally low in protein and high in sugar and fat. These products also provide fair amounts of minerals and other nutrients. Nutritionally it could be a good supplementary item for energy and other nutrients

like proteins and minerals but as its consumption is constantly increasing so its excessive and regular consumption may disturb caloric intake balance, which can produce over weight problem. Also intake of higher amounts of simple sugar help in the development of diabetes. So the use of confectionery products may be with caution. Excess of every thing is bad and caution in eating is the best for health.

Table VIII *Chemical composition and caloric values of miscellaneous products*[1]

Name of products	Moisture (%)	Protein (%)	Fat (%)	Ash (%)	Fiber (%)	Carbohydrate (%)	Energy Kcal/100g
Amratee	8.23± 0.56	3.33± 0.06	18.53± 0.11	0.29± 0.007	1.29± 0.005	68.33± 0.89	453
Halwa	24.05± 1.04	2.70± 0.03	20.51± 0.16	0.89± 0.003	1.51± 0.004	50.34± 1.56	397
Laddo	13.91± 0.69	5.43± 0.04	31.95± 0.12	0.51± 0.001	3.10± 0.003	45.12± 0.89	490
Samosa	27.07± 0.56	5.25± 0.05	31.57± 0.06	1.54± 0.007	2.73± 0.004	31.84± 1.45	433
Pateesa	3.48± 0.1	2.63± 0.0	23.30± 0.11	0.14± 0.005	1.25± 0.001	69.02± 0.96	496
Perra	22.91± 0.36	8.90± 0.04	2.01± 0.23	1.21± 0.001	1.75± 0.006	63.13± 1.08	306
Namakpara	3.07± 0.65	5.76± 0.06	28.00± 0.12	1.86± 0.006	2.65± 0.004	58.66± 0.99	510
Pakora	52.29± 0.56	7.91± 0.04	23.00± 0.01	2.73± 0.004	3.00± 0.006	11.08± 0.52	283
Masu	2.14± 1.02	2.63± 0.04	31.00± 0.37	0.49± 0.002	1.20± 0.002	62.53± 0.45	540
Abidana	16.93± 0.56	2.95± 0.09	21.10± 0.15	0.45± 0.004	2.07± 0.006	56.47± 0.14	428
Pistaroll	14.07± 0.58	8.58± 0.01	18.68± 0.05	1.76± 0.003	1.65± 0.001	55.26± 0.89	424

1. The determinations were done in triplets

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